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How to measure areal convergence: a case study of contact-induced grammaticalization in the German-Hungarian-Slavonic contact area

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This paper deals with the diffusion of grammaticalization processes among neighbouring languages. It is a contribution to the study of phenomena of areal convergence in the languages of Central and Eastern Europe. We will deal with the modals in the Slavonic languages and analyse how far they are influenced by the German modal verbs. The point of departure will be the modal systems in German and the individual Slavonic languages. As we are interested in areal aspects we will likewise take into consideration Hungarian. In contrast to previous studies, we will apply the theoretical framework of grammatizalisation theory of Lehmann et alii (1995[2]) and combine it with the method of measuring typological distance and areal convergence as developed in van der Auwera (1998a, b).

We will try to answer the following questions: 1) What are the features of the modal systems in the individual languages?, 2) How strong is the influence of German?, 3) How can we measure areal convergence?, and 4) Do we find evidence of an areal cline? These questions will be approached on the basis of the areal distribution of meanings and morphosyntactic structures.

1. Previous studies

Van der Auwera & Amann (in print) show that modal polyfunctionality is a feature typical for the European languages. They quote the work by Porák who already in 1968 observed a certain areal cline in the distribution of modals among the Slavonic languages: whereas the West Slavonic languages have predominantly verbs which inflect for person, Russian as the other extreme point seems to prefer impersonal modals or auxiliaries of non-verbal origin. Porák explains this areal cline with the Europeanisation through German. In the work Hansen (2000) I described the paths of borrowing of German *müssen* – a development I called 'a success story' because *müssen* found its way into a fairly large number of Slavonic languages. A revealing analysis of the influence of German on the Polish modal systems is Weiss (1987). Porák's and Weiss' very interesting observations and my previous studies will be taken as point of departure for the present study.

2. Modals as a fuzzy cross-linguistic category

Modals are means of expression of modality which have undergone a grammaticalization process; they express the basic notions 'necessity', 'possibility' or 'volition' and can cooccur with most types of verbs. We can define modals in the following way:

A modal is a polyfunctional expression of modality. It always occures with main verbs in the predicate position and opens one and only one argument position which is filled by a lexical verbal stem. A modal does not select its own nominal arguments but takes over the argument structure of the verbal form. No selection restrictions are imposed on the main verb.

Modals are to be located at the 'grammatical periphery' (Plungian's term 2003, 130 ff.) and tend to form a kind of fully analytical paradigm of the verb. Typical modals are polyfunctional in the sense that they express no less than two types of modality. We usually distinguish dynamic, deontic and epistemic modality. Modals are polyfunctional, while so called modal content words, i.e. words with modal meaning which are not subject to an auxiliarisation process, have only one modal meaning. Let us compare the fully-fledged modal auxiliary Slovak *môct'* 'can' with the modal content word *vládat'* 'to be capable'. The former can express 'capability' (dynamic), 'objective possibility' (dynamic), 'permission' (deontic) and 'perhaps' (epistemic), while the latter is confined to 'capability':

● capability (dynamic):

(1) Slovak *Nevidel* *som* *ťa* *3 dni,*
not-seeIMPFV.PST.MASC.SG be.1SG you.ACC.SG 3 day.ACC.PL
nemôžem/nevládzem *to* *vydržať.*
not-can.PRES.1SG that stand.INF
'I have not seen you for three days, I can't stand that any longer.'

● objective possibility (dynamic):

(2) Slovak *Naši* *priatelia* *nemohli/?nevládali* *postaviť*
our.NOM.PL friend.NOM.PL not-can.PAST.3PL put.up.PFV.INF
stan, *lebo* *nemali* *kladivo.*
tent.ACC.SG because not-have.PAST.3PL hammer.ACC.SG
'Our friends couldn't put up the tent because they didn't have a hammer.'

● permission (deontic):

(3) Slovak *Odsúdení* *na najvyšší* *trest*
sentence.PFV.PRT.PASS.NOM.PL to high.SUP.ACC.SG punishment.ACC.SG
*môžu / *vládzu* *si* *v USA* *v štáte* *Utah*
can.PRES.3PL self.DAT in USA.PREP.SG in state.PREP.SG Utah
vybrať *spôsob* *smrti*
choose.PFV.INF way.ACC.SG death.GEN.SG
'In the state of Utah the prisoners sentenced to death can choose the way they will die.'

● medium probability (epistemic):

(4) Slovak *V Tatrách* *môže / *vládze* *dnes* *pršať*.
in Tatra.PREP.PL can.PRES.3SG today rain.INF
'It might rain in the Tatra today.'

Semantic polyfunctionality is not restricted to the three types of modality. Some modals have developed functions beyond modality, i.e. postmodal grammatical meanings. This term was coined by Plungian & van der Auwera (1998) and denotes meanings which according to the universal semantic map develop out of modal meanings. This has happened with Polish *mieć* 'should' which has adopted the evidential meaning 'hear-say' (cf. also Czech *mít* and Slovak *mať*).

The fact that a fully fledged modal functions as an auxiliary is the result of a far reaching condensation of scope. A typical modal is part of the predicate and usually does not occur in other syntactic positions, it does not select its own nominal arguments but takes over the argument structure of the verbal form, and, therefore, it does not influence the selection of the subject. Therefore, modals can be combined with human and nonhuman subjects. This also explains why modals allow passive transformations without change in meaning:

(5) Slovak *Mechanici* *nemohli* *auto* *opravit'*.
mechanic.NOM.PL not-can.PAST.3PL car.ACC.SGrepair.PFV.INF
'The mechanics couldn't repair the car.'

(5') Slovak *Auto* *nemohlo* *byt* *opravené*
car.NOM.SG not-can.PAST.3SG be.INF repair.PFV.PAST.PART.NOM.SG
mechanikmi.
mechanic.INSTR.PL
'The car couldn't be repaired by the mechanics.'

3. The modals in the individual languages

As mentioned in the previous sections, we are going to analyse the modal systems in the German-Slavonic contact area and in Hungarian. Due to lack of space we will not be able to cover all languages spoken in the relevant area but shall restrict ourselves to the Standard languages German, Polish, Czech, Slovak, Upper Sorbian, Russian, Slovenian, Serbian/Croatian, Bulgarian and Hungarian. We shall also include Old Church Slavonic.

Map 1: The German-Slavonic-Hungarian contact area (adapted from Comrie & Corbett 1993)

If we apply the above mentioned model to German, Slavonic and Hungarian we see that each individual language possesses a limited set of modals which can be distinguished from other expressions of modality. Many languages are characterised by the opposition between modals agreeing with the subject ('personal modals') and those modals which being restricted to the third person do not allow a subject in the nominative case ('impersonal modals'); cf.:

(6) Russian *Ivan* *možet* *rabotat'.*
Ivan.NOM.SG can.PRES.3SG work.IMPFV.INF
'Ivan can work.'

(6') Russian *Ivanu možno rabotat'. / Možno rabotat'.*
Ivan.DAT.SG possible work.INF / possible work.IMPFV.INF
'It is possible (for Ivan) to work.'

Table 1: The modals in the contact area

	personal modal	**impersonal modal**	**semi modal**	**Specific elements**
German	POSS: *können*, *dürfen*, *mögen* NEC: *müssen*, *nicht brauchen*, *sollen*		POSS/NEC: *sein* NEC: *haben*	
Old Ch. Slavonic	POSS: *mošti*		POSS: *moštьnъ*	
Polish	POSS: *móc* NEC: *musieć*, *powinien*, *mieć*	POSS: *można* NEC: *trzeba*, *należy*, *wypada*	POSS: *wolno*, *niepodobna* NEC: *nie potrzebować* and others	
Czech	POSS: *moct*, NEC: *muset*, *mít*	NEC: *třeba*	POSS: *smět*, *lze* NEC: *potřebovat* and others	
Slovak	POSS: *môct'* NEC: *musiet'*, *mat'*	POSS: *možno* NEC: *treba*	POSS: *smiet'* NEC: *potrebovat'* and others	
Upper Sorbian	POSS: *móc*, NEC: *dyrbjeć*, *měć*, *njetrjebać*			
Russian	POSS: *moč'* NEC: *dolžen*	POSS: *možno*, *nel`zja* NEC: *nado*, *sleduet*	NEC: *nadležit*, *nužno*, *prixoditsja* and others	
Slovenian	POSS: *moči* NEC: *morati*	POSS: *utegniti* NEC: *treba*		POSS: *lahko*
Serbian / Croatian	POSS: *moći* NEC: *morati, (trebati)*	NEC: *trebati, valjati*	POSS: *sm(j)eti, ht(j)eti* NEC: *imati*	
Bulgarian	POSS: *moga* NEC: *trjabva*		NEC: *imam*	
Hungarian		NEC: *kell*	POSS: *tud* NEC: *muszáj*	POSS: *-het*

According to the definition proposed here, German has six fully fledged modals (*können*, *dürfen*, *mögen*, *müssen*, *nicht brauchen*, *sollen*) and two semi modals (*sein*, *haben*). Due to its syntax and semantics we have to exclude the verb *wollen* 'to want' which usually is considered part of the category 'Modalverben'. *nicht brauchen* is a negative polarity item, i.e. it is restricted to negative contexts (¬NEC). The modals *müssen* and *sollen* are not synonymous, they differentiate strong and weak necessity. It is interesting to note that all German modals are personal.

In Old Church Slavonic we find a system which is still – as Večerka (this volume) and Pallasová (1990) put it – in statu nasciendi. Only *mošti* 'can' has the status of a fully-fledged modal, *moštьnъ* 'possible' is still rather weakly grammaticalised. Old Church Slavonic resorts more to content words like e.g. the exclusively deontic *podobati*, *dostoitъ* etc. or to the independent modal infinitive. The data from Old

Church Slavonic and Old Russian sources show that all Slavonic modals have developed in historical time.

In Polish we find one personal modal of possibility and three personal modals denoting various types of necessity. Whereas *musieć* expresses strong necessity like English *must* or *have to*, the elements *powinien* and *mieć* denote a weaker degree of compulsion (cf. English *shall*, *should*, *ought to*). Apart from that, Polish has a couple of impersonal modals of possibility and necessity. Table 1 contains the semi-modals *wolno*, *niepodobna* and *nie potrzebować* which are not fully polyfunctional and, therefore, can not be considered fully-fledged modals: *wolno* is restricted to deontic and the latter two are restricted to dynamic modality.

Czech has three personal modals of verbal origin, the impersonal *třeba* used with a copula and some semi-modals. *Smět* 'to be allowed, to dare' is analysed as a semi-modal: it shows the syntactic behaviour of an auxiliary (it can combine with human and non-human subjects), but it is not polyfunctional in its modal use.

(7) Czech *Bezpečnost v Evropě nesmí být*
security.NOM.SG in Europe.PREP.SG not-can.PRES.3SG be.INF
zajišťována na úkor svobody.
guarantee.PFV.PART.PASS.SG at expense.ACC.SG freedom.GEN.SG
'The security in Europe may not be guaranteed at the expense of freedom.'

Smět is restricted to deontic modality and has not expanded into epistemic or dynamic modality. The impersonal element *lze* 'it is possible' derived from *lehký* 'light, easy' takes an intermediate position between semimodals and modals.

Slovak is quite similar to Czech; the main differences are found in the field of impersonal modals. Standard Slovak has no equivalent for Czech *lze* and, in contrast to Czech *třeba*, Slovak *treba* does not take a copula:

(8) Czech *Je třeba to udělat.*
be.PRES.SG necessary that do.PFV.INF

(9) Slovak *Treba to urobit'.*
Necessary that do.PFV.INF
'One has to do it.'

Upper Sorbian has only four modals at its disposal, all of them personal verbs. Unlike the other West Slavonic languages, Upper Sorbian did not borrow *müssen* but

dyrbjeć ‘must’; cf. Modern German *dürfen* which, however, is an expression of possibility. This verb was borrowed from German at a rather early stage when it still retained its original meaning of an internal necessity which is still found in the Modern German derivates *bedürfen* ‘to need’ or *Bedarf* ‘need’. Later *dürfen* evolved into an expression of possibility.[1]

Russian is characterised by two personal modals: the verbal *moč’* and the adjectival *dolžen* with the original meaning ‘to owe’. Apart from that, Russian makes use of the impersonal modals of necessity *nado* and *sleduet.* The latter is predominantly found in written language. It is interesting to note that Russian and Slovenian are the only Slavonic languages having a modal specialised on impossibility: *nel’zja* is the negated form of *možno.*

The Slovenian modal system contains the four the elements *lahko, moči, morati*, *treba* and *utegniti*. The core modal of possibility is *lahko* ‘lightly’ which is quite peculiar because in contrast to other modals it combines with finite verbs.

(10) Slovenian *Otrok* *lahko* *odpre* *vrata.*
child.NOM.SG easy.ADV open.PRES.3SG door.ACC.PL
‘The child is able to open the door.’

moči has become restricted to non-affirmative contexts like conditional and negation. It is the regular negated form of *lahko* (modal suppletion strategy):

(11) Slovenian *Lahko* *grem* *v kino.*
lightly go.IMPFV.PRES.1SG in cinema.ACC.SG
‘I can go to cinema.’

(11’) Slovenian *Ne morem* *iti* *v kino.* (**Ne lahko grem v kino.*)
not can.PRES.1SG go.IMPFV.INF in cinema.ACC.SG
‘I can’t go to cinema.’

Another peculiarity is the verb *utegniti* with the original meaning ‘to have the time to do something’ which can also express participant external possibility and an epistemic meaning.

Serbian has two personally constructing modals: *moći* ‘can’ and *morati* ‘must’. In the Croatian standard language and in Serbian colloquial speech we find the use of *trebati* as a personal verb regularly inflected for person:

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[1] Like Upper Sorbian, Old Czech had a modal based on an ancestor of today’s *dürfen*. The loan word *drbiti* in the meaning of ‘must’ did not remain in use and was replaced by *muset*. For the semantic change of *dürfen* s. Bech (1951) and van der Auwera (2001).

(12) Serbian/Croatian *Trebamo* *nabaviti* *vizu.*
must.PRES.1PL buy.PFV.INF visa.ACC.SG

(12') Serbian *Trebamo* *da nabavimo* *vizu.*
must.PRES.1PL that buy.PFV.PRES.1PL visa.ACC.SG

(12'') Serbian/Croatian *Treba* *nam* *nabaviti* *vizu.*
must.PRES.3SG we.DAT buy.PFV.INF visa.ACC.SG
'We have to purchase a visa.'

Impersonal modals are *valjati* and *trebati*, both denoting in comparison to *morati* a weaker degree of compulsion. The semi-modal *sm(j)eti* functions quite similarly to the Czech and Slovak cognates. The volitional modal *ht(j)eti* developed into a future marker and became remodalised: it can express epistemic necessity as in example (13):

(13) Serbian/Croatian *Bićе* *da mu je* *to sin:*
be.INF.WILL.3SG that he.DAT be.PRES.3SG that son.NOM.SG
liči *na njega.*
look.like.IMPFV.PRES.3SG on he.ACC
'That will be his son. He looks like him.'

Bulgarian is characterised by a poor system which consists only of the two core modals *moga* 'can' and *trjabva* 'must'. Syntactically, Bulgarian modals differ from the other Slavonic languages in that they combine with inflected verbs which is due to the loss of the infinitive in the Balkan languages (also in Serbian, cf. example 12').

(14) Bulgarian *Petăr* *trjabva* *da dovede* *domoupravitelja.*
Peter.NOM.SG must that call.PRES.3SG caretaker.ACC.SG
'Peter has to call the caretaker.'

Hungarian is interesting because of its non-Indo-European origin and its typologically different morphological structure. As an agglutinating language Hungarian possesses a suffix denoting different types of possibility (*-het/-hat*).[2]

(15) Hungarian *Péter* *elutazhat* *Görögországba.*
Péter away.travel.POT.PRES.3SG Greece.DEST.SG
'Peter can go to Greece.'

[2] In specific contexts *-het* renders a necessity reading; cf. van der Auwera & Plungian (1998, 99).

The central modal for necessity is the impersonally constructing *kell*. Apart from that, there are no really polyfunctional modal elements.

(16) Hungarian *A betegnek ágyban kell maradnia.*
DEF.ART ill.DAT.SG bed.LOC necessary stay.INF.POSS.3SG
'The patient has to stay in bed.'

Muszáj is borrowed from German *muss sein*, but it is restricted to participant external necessity, whereas the verb *tud* with the original meaning 'to know' can denote exclusively participant internal possibility, i.e. ability.

4. How to measure areal convergence

As we have seen, there is a bundle of features characterising modal systems. We have semantic and morphosyntactic features. For the description of the areal diffusion of these features I shall apply the so called isopleth approach as proposed in van der Auwera (1998a, 1998b). It contains the following steps: 1. we draw simplified geographic maps which represent the data of the analysed languages and abstract away from varieties spoken in the relevant area. These maps make no claim about languages not included in the study. Hence, we will say nothing about Ukrainian, Belorussian or any dialect of the studied languages; 2. The presence or absence of a feature is represented by isogloss maps; 3. On the basis of the isogloss maps we construct another type of map which represents convergence in the number of features present. "In these maps the demarcation lines, called 'isopleths', mark off areas of languages displaying the same number or *plethora* of features, but not necessarily the same features." (van der Auwera 1998a, 260)

In the following sections we shall work out an isopleth map of the modal systems in the German-Slavonic-Hungarian contact area. As an adaptation of van der Auwera's study of the Balkan and Meso-American Sprachbund I will weigh some features. I want to take into consideration not only +/- presence of a feature, but also the weight of some highly relevant features**.**

4.1. The distribution of modal meanings

We can spot 14 features characterising the modal systems of the languages in the analysed contact area. Let us start with the areal distribution of modal meanings.

Feature 1: The distinction between expressions denoting strong and weak necessity, the latter in combination with some additional semantic features. This distinction is quite typical for Germanic: German *müssen* vs. *sollen*, English *must* vs. *should.* This distinction is attested in dedicated modals in Upper Sorbian, Czech, Slovak, Polish,

Slovenian, Serbian/Croatian; but not in Bulgarian, Russian or Hungarian. These languages preferably resort to the conditional form of a modal of necessity as in Russian: *dolžen* (must.M.SG) vs. *dolžen byl by* (must.M.SG. be.PAST.M.SG COND).

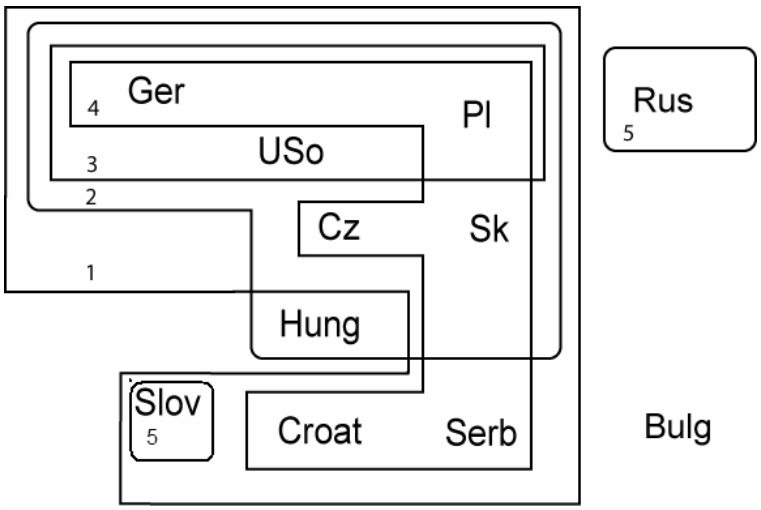
Feature 2: Some languages have borrowed a modal or at least a semi-modal from German: these are Upper Sorbian (*dyrbieć*), Polish (*musieć*), Czech (*muset*), Slovak (*musiet*') and Hungarian (*muszáj*). Slovenian, Serbian/Croatian, Bulgarian or Russian[3] did not borrow a modal.

Feature 3: The next question is whether the language has a dedicated form for unnecessity like German *nicht brauchen*. Here we find that Upper Sorbian and Polish have it (*njetrjebać* and *nie potrzebować*), the others do not; Czech *potřebovat* and Slovak *potrebovat*' are not restricted to negative contexts.

Feature 4: An important semantic modal feature dividing the Slavonic languages is the presence or absence of a grammaticalised modal specialised on deontic possibility, i.e. permission. German has *dürfen*, Czech, Slovak, Serbian/Croatian use *smět* and cognates, which show an intermediate degree of grammaticalization, because they syntactically behave like auxiliaries, but they are not polyfunctional; i.e. they are restricted to deontic modality and the lexical meaning 'to dare'.

Feature 5: This feature concerns the presence or absence of a dedicated modal for impossibility. In the area studied only Russian and Slovenian have a special modal for ¬ POSS (*nel'zja* and *moči*). It is interesting to note that the Czech cognate *lze* is not restricted to negative contexts.

Map 2: The distribution of modal meanings (features 1-5)



[3] It has to be pointed out that there are indeed some examples of the use of *musit'* from the end of the 17th and the beginning of the 18th century (cf. Besters-Dilger 1997, 20). During this period, Russia was under Polish or combined Polish-Ukrainian-Belorussian influence. After this short intermezzo *musit'* soon disappeared from written Russian and is attested today only in some dialects of Russian.

4.2. The distribution of postmodal meanings

The next map contains isoglosses according to the presence or absence of postmodal meanings. As modals in Slavonic tend to stop their grammaticalization at a relatively early stage we do not find very many postmodal meanings (cf. Hansen 2004). The most important ones are the following:

Feature 6: Some languages have developed a postmodal meaning in the semantic domain of evidentiality which "refers to the source of evidence the speaker has for his statement" (de Haan 2001, 1)[4]. We are dealing with the meaning 'hear-say' as in German *sollen:*

(17) German *Er soll sehr reich sein.*
He shall.PRES.3SG very rich be.INF
'He is said to be very rich'.

This evidential meaning has developed in Upper Sorbian *měć*, Czech *mít*, Slovak *mat'* and Polish *mieć*. In contrast to German *sollen*, these modals are not derived from expressions with the original meaning 'to owe', but from the possession verb 'to have'.

(18) Slovak *Má byt' vel'mi bohatý.*
(19) Polish *Ma być bardzo bogaty.*
have.PRES.3SG be.INF very rich.NOM.SG
'He is said to be very rich'.

Feature 7: In the South Slavonic languages an expression of volition developed into a fully fledged future tense: Serbian/Croatian *ht(j)eti* and Bulgarian *šte.* This is not attested in German, Hungarian or the other Slavonic languages.

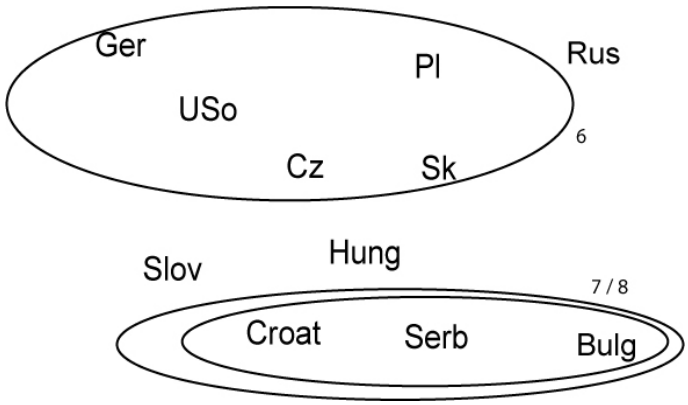
Feature 8: Another postmodal meaning found in the area is the result of the development of a modal of possibility into a prohibitive marker as in Serbian/Croatian *moći* > *nemoj pevati*; 'don't sing!' This isogloss coincides with the previous one.

4.3. The distribution of verbal modals

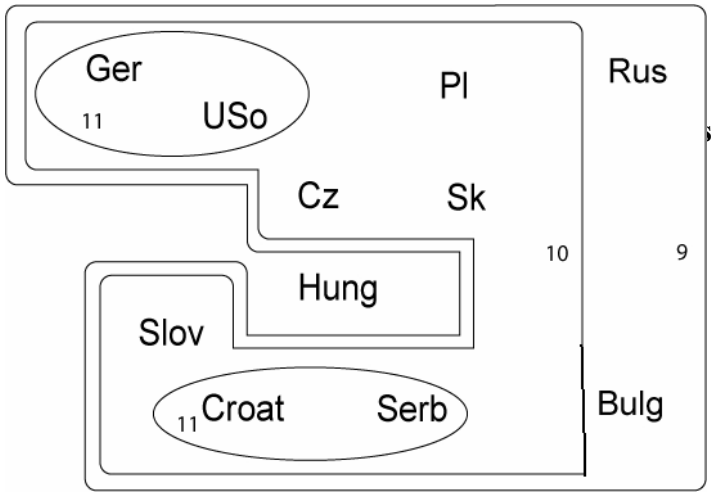
As has been observed already by Porák (1968), there seems to be an areal cline in the verbal origins of the modals. As I consider this property to be typologically highly relevant, I will base three features on it.

[4] Compare also Holvoet and Xrakovskij (this volume).

Map 3: The distribution of postmodal meanings (features 6-8)



Map 4: The distribution of verbal modals (features 9-11)



Feature 9: The language has at least one modal of verbal origin: all languages except Hungarian (*tud* 'to be able' is not really polyfunctional and thus not a fully-fledged modal).

Feature 10: More than half of the modals are of verbal origin: all languages except Hungarian, Bulgarian and Russian.

Feature 11: All modals are of verbal origin: German, Upper Sorbian and Serbian/Croatian.

According to this analysis German and Sorbian, but also Serbian/Croatian "score" 3 points, Russian only 1. Thus, we get a more precise description of the areal cline observed by Porák.

4.4. The distribution of personal/impersonal modals

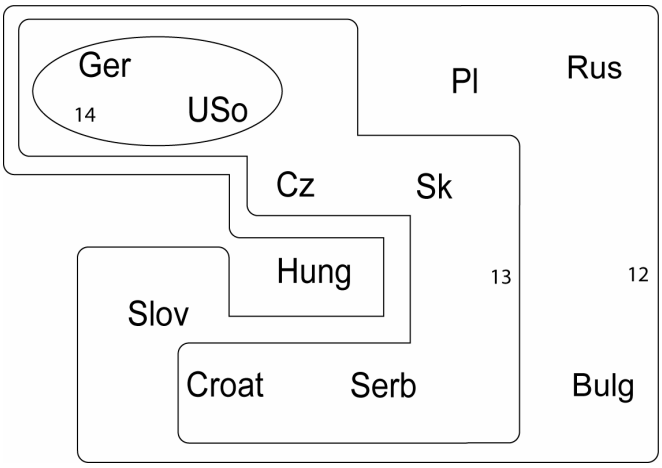
The other multiple feature is the percentage of personally and impersonally constructing modals as in example (6) Russian *Ivan možet rabotat'* vs. *Ivanu možno rabotat'*. The feature is weighed along the same lines as the feature 'verbal origin':

Feature 12: The language possesses at least one personal modal: all languages except Hungarian.

Feature 13: More than half of the modals are personally constructing: this area includes all languages except Polish (4 personal vs. 4 impersonal modals), Slovenian (2 personal, 3 impersonal modals and *lahko*), Russian (2 personal vs. 4 impersonal modals), Bulgarian (the dichotomy is not applicable here) and the aforementioned Hungarian.

Feature 14: All modals are personally constructing. This is found only in German and Upper Sorbian.

Map 5: The distribution of personal/impersonal modals (features 12-14)



5. Areal covergence: the isopleth approach

Now we shall apply the isopleth approach to the data presented in the preceding sections. We are going to measure the similarity of the modal systems to German. Note that we will simply count the features coinciding with German and draw demarcation lines, called 'isopleths', which mark off areas of languages displaying the same number or plethora of features, but not necesssarily the same features.

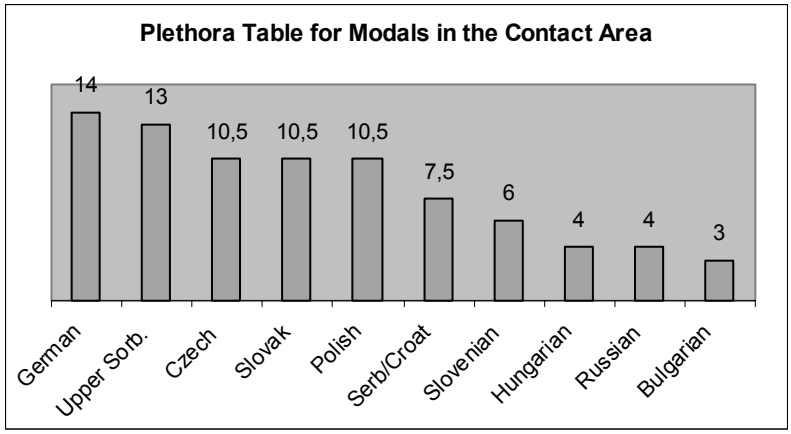
If we list all the features together we get table 2 which contains the scores of the individual languages. Following van der Auwera '0' counts as feature absent, '0,5' as language instantiates this feature to some extent and '1' as feature present. '0,5' is given if the element in question has not developed into a fully-fledged modal (semi-modal) whereas in German it has. A language gets one point on the plethora scale if the feature

is in the same way present or absent as in German. Table 3 is another representation of these findings concerning the distance or convergence of the modal systems.

Table 2: Overview of the distribution of the features

Feature	1	2	3	4	5	6	7	8	9	10	11	12	13	14	Iso-pleth
German	1	1	1	1	0	1	0	0	1	1	1	1	1	1	14
Upper Sorbian	1	1	1	0	0	1	0	0	1	1	1	1	1	1	13
Czech	1	1	0	0.5	0	1	0	0	1	1	0	1	1	0	10.5
Slovak	1	1	0	0.5	0	1	0	0	1	1	0	1	1	0	10.5
Polish	1	1	1	0.5	0	1	0	0	1	1	0	1	0	0	10,5
Serbian/Croatian	1	0	0	0.5	0	0	1	1	1	1	1	1	1	0	7.5
Slovenian	1	0	0	0	1	0	0	0	1	1	0	1	0	0	6
Hungarian	0	1	0	0	0	0	0	0	0	0	0	0	0	0	4
Russian	0	0	0	0	1	0	0	0	1	0	0	1	0	0	4
Bulgarian	0	0	0	0	0	0	1	1	1	0	0	1	0	0	3

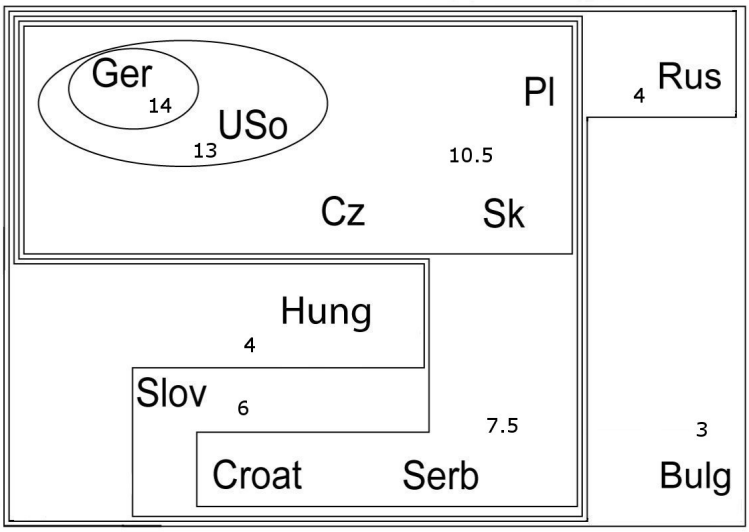
Table 3: Plethora table



We see that the modal systems of the analysed languages show a certain degree of areal cline. Generally speaking, the further away we get from the German speaking territory the more differences we find. These findings corroborate Porák's somewhat intuitive observations. Upper Sorbian is very similar to the German system which can be explained by the fact that Sorbian speakers have been in an enduring intensive contact with German. Most speakers have been bilingual for many centuries. Czech, Slovak

and Polish show a lower degree of similarity to German. They score 10,5 points on the plethora scale. Polish came into intensive contact with German in the 13th century when German settlers entered the country. In the cities founded by these settlers German law was used, the so-called Magdeburg law, and the use of both languages was widespread, which created a language situation leading to the borrowing of many German words. As with Polish, the German influence makes a similar early appearance in Czech. The influence of German culture and language also started from the 13th century and was especially strong in the capital Prague. Czech was used for several centuries in the territory we now call Slovakia, i.e. in the Northern part of the Hungarian empire. Hence, transmitted by Czech and the German settlers in Slovakia the German structural elements found their way into Slovak. Also Croatia, especially the capital Zagreb, as part of the Austrian-Hungarian Empire has been in an enduring contact with German. The fact that Serbian/Croatian is less convergent with German might be explained by the fact that the modern Standard language(s) are based on the Štokavian dialect which has spread from the South East, and that Serbia as part of the Ottoman empire has had much less contact with German language and culture.

Map 6: The Isopleth map based on 14 features



Hungarian has been in very close contact with German for several centuries, but probably due to its typological distance it seems to have been relatively resistant to German influence. Russian and Bulgarian are located at the periphery and have not adopted German structures at all. In these countries German has never played an important role and bilingualism was not very widespread.

What we need to explain is the fact that Slovenian, whose speakers have been in an intensive contact with German for a thousand years, does not show a very high resemblance to the German modal system. On the contrary, here we find the peculiar

grammaticalization of a new modal of possibility based on the adverb *lahko* 'lightly' which combines with a finite verb, not with an infinitive like its cognates Czech *lze* or Russian *nel'zja*. On the one hand, Slovenian and German share a modal particle derived from the adjective 'lightly': *lahko* and *vielleicht* 'maybe' (morphological gloss: much.lightly). As the other Slavonic languages do not have a modal particle of that origin we can assume that *lahko* developed under the influence of German *vielleicht*.[5] On the other hand, in contrast to German, this element started to replace the core modal of possibility *moči* which became restricted to non-affirmative contexts leading to a reconstruction of the whole system. As a result, the Slovenian modal system is quite peculiar and differs considerably from both German and the other Slavonic languages (cf. also the specific Slovenian data in the parallel corpus study van der Auwera, Schalley & Nuyts, this volume).

6. Conclusions

As the Slavonic modals have developed in historical times they present a very interesting field for the study of contact induced grammaticalization. It turns out that especially the West Slavonic languages have been considerably influenced by German, whereas Russian and Bulgarian show no traces of German structures. The only language at odds with the areal cline is Slovenian which displays rather individual developments. We hope to have shown that the isopleth approach is a powerful tool for the description of areal convergence phenomena. With the exception of Slovenian, the results of the isopleth analysis correspond to the sociolinguistic parameters of language contact found in the area like intensity of contact, duration of contact, socioeconomic dominance etc.. The data also correspond to the differences in frequency of the use of auxiliary and adverbial strategies found in a Slavonic parallel corpus (van der Auwera, Schalley & Nuyts, this volume). The isopleth approach can cope with a large number of features and, thus, helps to carry out a very fine-grained analysis of convergence phenomena. Its advantage is that it can combine both semantic and morphosyntactic features. It should be pointed out that it is important to weigh the features because some are simply more relevant than others.

The data show that in the analysis of contact-induced grammaticalization we cannot exclusively rely on the semantic sources of the grammaticalised elements as proposed by Kuteva (1998). She bases her study of auxiliation in Europe exclusively on the so-called Basic Event Schemas, i.e. on the original sources from which the elements develop into abstract domains. Let me illustrate this point with the data I presented here: several features of convergence between German and the neighbouring Slavonic lan-

[5] I owe this explanation to Johan van der Auwera (p.c.).

guages go back to the development of the possession verb 'to have' which although originating in a different source domain took over many functions of German *sollen*, which in contrast goes back to a verb meaning 'to owe'. The cognates of Polish *mieć* took over the denotion of a weak necessity and the the meaning 'hearsay'. The data from the other Slavonic languages and from the history clearly show that *mieć* changed its semantics under the influence of German *sollen.* Apart from that, both are verbal personally constructing modals. This corroborates the model proposed in Heine & Kuteva (2003, 533) where Kuteva seems to abandon her approach from 1998. In the case of *sollen* we are dealing with a process of what Heine & Kuteva call 'ordinary contact induced grammaticalization', which involves the following steps:

1. Speakers of Polish notice that in German there is a gram for weak necessity.
2. They develop an equivalent gram using material available in their own language.
3. They draw on universal strategies of grammaticalization, using a verb of possession in order to develop the gram 'weak necessity'.

As the analysis of the historical data from Polish indicate we are not dealing with a process of polysemy copying. It is interesting to note that the German possession verb *haben* has the modal meaning 'strong obligation'; hence, it was not the source for the grammaticalization of the possession verbs in Slavonic. Another example for ordinary contact induced grammaticalization is the beginning auxiliarisation of a modal specialised on deontic possibility: whereas German has *dürfen,* in the neighbouring languages Czech, Slovak and Serbian/Croatian a verb with the meaning 'to dare' developed the meaning 'permission' (Slovak *smiet'* and its cognates).

Apart from that, we likewise find instances of what Heine & Kuteva (2003, 539) call 'replica grammaticalization'. This process of contact induced grammaticalization differs from the previous type in a different framing of 3: Here, speakers replicate the grammaticalization process they assume to have taken place in German, using an analogical formula. An example would be the grammaticalization of a dedicated modal for negated necessity as in German *nicht brauchen* and Polish *nie potrzebować.*

References

Bech, G. 1951. *Grundzüge der semantischen Entwicklungsgeschichte der hochdeutschen Modalverba.* København: Munksgaard.

Besters-Dilger, J. 1997. Modal'nost' v pol'skom i russkom jazykach. Istoričeskoe razvitie vyraženija neobchodimosti i vozmožnosti kak rezul'tat vne- i mežslavjanskogo vlijanija. *Wiener Slavistisches Jahrbuch, 43*, 17-31.

Comrie, B. & Corbett, G. G. (eds.) 1993. *The Slavonic languages.* London etc.: Routledge.

de Haan, F. 1997. *The interaction of negation and modality. A typological study*. New York etc.: Garland.

de Haan, F. 2001. The Relation between Modality and Evidentiality. In: Müller, R. & Reis, M. (eds.): *Modalität und Modalverben im Deutschen* (*Linguistische Berichte. Sonderheft* 9/2001). Hamburg: Buske, 1-19.

Gamon, D. 1993. On the development of epistemicity in the German modal verbs *mögen* and *müssen*. *Folia Linguistica Historica, XIV*, 125-176.

Hansen, B. 1998. Modalauxiliare in den slavischen Sprachen. *Zeitschrift für Slawistik, 43*, 249-272.

Hansen, B. 2000. The German Modal Verb 'müssen' and the Slavonic Languages - The Reconstruction of a Success Story. *Scando-Slavica, 46*, 77-93.

Hansen, B. 2001. *Das Modalauxiliar im Slavischen. Semantik und Grammatikalisierung im Russischen, Polnischen, Serbischen/Kroatischen und Altkirchenslavischen.* (Slavolinguistica 2). München: Verlag Otto Sagner.

Hansen, B. 2003. The Grammaticalization (and Degrammaticalization?) of Modals in Slavonic. In: Berger, T. & Gutschmidt, K. (eds.): *Funktionale Beschreibung slavischer Sprachen. Beiträge zum XIII. Internationalen Slavistenkongress in Ljubljana.* (Slavolinguistica 4). München: Verlag Otto Sagner, 97-115.

Hansen, B. 2004. The boundaries of grammaticalization. The case of modals in Russian, Polish and Serbian/Croatian. In: Bisang, W., Himmelmann, N. P. & Wiemer, B. (eds.): *What makes grammaticalization? A look from its fringes and its components* (Current trends in linguistics. Studies and Monographs 158). Berlin etc.: de Gruyter, 245-271

Heine, B. & Kuteva, T. 2003. On contact-induced grammaticalization. *Studies in Language,* 27, 529-572.

Ivšić, S. 1931. Glagol 'morati' 'debeo' i imperfekt 'morah' 'poteram'. *Južnoslovenski Filolog, X*, 166-170.

Kuteva, T. 1998. Large linguistic areas in grammaticalization: auxiliation in Europe. *Language Sciences, 20*, 289-311.

Lehmann, Ch. 1995[2]. *Thoughts on grammaticalization. A programmatic sketch.* München: LINCOM Europa.

Pallasová, E. 1990. Sémantika možnosti a nutnosti v staroslověnštině. *Slavia, 60*, 264-274.

Plungjan, V. A. 2003. *Obščaja morfologija. Vvedenie v problematiku.* Moskva: Editorial URSS.

Porák, J. 1968. Modalverben im Tschechischen und Deutschen. In: Havránek, B. & Fischer, R. (eds.): *Deutsch-tschechische Beziehungen im Bereich der Sprache und Kultur*. Berlin: Akad. Verlag, 97-101.

van der Auwera, J. 1998a. Revisiting the Balkan and Meso-American linguistic areas. *Language Sciences,* 20, 259-270

van der Auwera, J. (ed.) 1998b. *Adverbial constructions in the Languages of Europe.* Berlin etc.: Mouton de Gruyter.

van der Auwera, J. 2001. On the typology of negative modals. In: Hoeksma J. et al. (eds.): *Perspectives on negation and polarity items.* Amsterdam: Benjamins, 23-48.

van der Auwera, J. & Ammann, A. in print. Modal polyfunctionality and Standard Average European. In: Klinge, A. & Hoeg Müller, H. (eds.): *Modality. Studies in Form and Function.* London.

van der Auwera, Johan & Plungian, V. A. 1998. Modality's semantic map. *Linguistic Typology,* 2, 79-124.

van der Auwera, J., Schalley, E. & Nuyts, J. 2005. Epistemic possibility in a Slavonic parallel corpus – a pilot study. In this volume.

Weiss, D. 1987. Polsko-niemieckie paralele w zakresie czasowników modalnych (na tle innych języków słowiańskich). In: Hentschel, G. et al. (eds.): *Sprach- und Kulturkontakte im Polnischen (für A. de Vincenz).* München: Otto Sagner, 131-156.

Zifonun, G. et al. 1997. *Grammatik der deutschen Sprache* I-III. Berlin, New York: de Gruyter.